DOCUMENT RESUME

ED 147 111 SE 023 279

| | |
|---|---|
| TITLE | Regional Meeting of Experts on Environmental Education in Latin America and the Caribbean, Bogota, Colombia, 24-30 November 1976. Final Report. |
| INSTITUTION | United Nations Educational, Scientific, and Cultural Organization, Paris (France). Environmental Education Section. |
| PUB DATE | 1 Mar 77 |
| NOTE | 58p.; For related documents, see SE 023 280-281; Not available in hard copy due to marginal legibility of original document |
| EDRS PRICE | MF-$0.83 Plus Postage. HC Not Available from EDRS. |
| DESCRIPTORS | *Conference Reports; Education; *Educational Assessment; *Environmental Education; Instructional Programs; Nonformal Education; *Program Descriptions; *Program Development; Program Evaluation; Regional Programs |
| IDENTIFIERS | *Latin America; UNESCO |

ABSTRACT

This is the final report on the background and proceedings of the Regional Meeting on Environmental Education in Latin America and the Caribbean, convened jointly by UNESCO and the United Nations Environmental Program. The goal of this regional meeting was to examine the problems of the environment within the region, and to recommend lines for action in environmental education. These were to reflect the specific characteristics of the natural surroundings and the socioeconomic and cultural settings of the region and of the countries that form the region. Environmental education was studied with respect to eco-development and life-long education in Latin America, educational systems in Latin America, strategies to introduce and develop environmental education in Latin America, and institutional strategies for developing environmental education at national and regional levels in Latin America. (MA)

**********
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
**********

ED147111

United Nations Educational, Scientific and Cultural Organization

International Environmental Education Programme — Unesco - UNEP

# Regional Meeting of Experts on Environmental Education in Latin America and the Caribbean

Bogota, Colombia
24-30 November 1976

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

S. Romero-Lozano

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

SE 023 279

Final Report

Unesco

This is the final report on the background and proceedings of the Regional Meeting on Environmental Education in Latin America and the Caribbean, convened jointly by Unesco and the United Nations Environmental Programme, with the generous support of the Konrad Adenauer Foundation, held in Bogotá, Colombia (24-30 November 1976).

The views expressed in this publication are those of the participants of the Regional Meeting of Experts on Environmental Education in Latin America and the Caribbean, and do not necessarily reflect the official position of Unesco.

Paris, 1 March 1977
Original: Spanish

TABLE OF CONTENTS


I. PRECEDENTS AND DEVELOPMENT OF THE WORK OF THE MEETING ..... 1

1. Introduction ..... 1

2. Goals ..... 1

3. Participants ..... 2

4. Preparations for the meeting ..... 3

5. Documents used at the meeting ..... 3

6. Opening session ..... 4

7. Organization and development of the work ..... 6

8. Agenda ..... 6

9. Introduction to the International Programme on Environmental Education of Unesco/UNEP ..... 7

10. Introduction to the documents prepared for the meeting ..... 10

11. Setting-up of the working groups ..... 11

12. Approval of the pre-project of the final report ..... 12

13. Closing of the meeting ..... 12

II. ENVIRONMENTAL EDUCATION IN THE CONTEXT OF ECODEVELOPMENT AND LIFE-LONG EDUCATION IN LATIN AMERICA ..... 14

1. Preliminary thoughts ..... 14

2. A setting for environmental education in Latin America and the Caribbean ..... 15

3. Goals of environmental education ..... 17

4. Structural characteristics and methodologies .... 19

TABLE OF CONTENTS (2)


III. ENVIRONMENTAL EDUCATION AND EDUCATIONAL SYSTEMS IN LATIN AMERICA ..... 21

1. Present situation ..... 21

2. Hindrances deriving from concepts of education .. 22

3. Hindrances inherent to the educational system ... 23

IV. STRATEGIES TO INTRODUCE AND DEVELOP ENVIRONMENTAL EDUCATION IN LATIN AMERICA ..... 27

1. General ideas on the setting which strategies must match ..... 27

2. Some requirements of environmental education within the system of formal education ..... 30

3. Non-formal environmental education. Some basic aspects ..... 33

V. INSTITUTIONAL STRATEGIES FOR DEVELOPING ENVIRONMENTAL EDUCATION AT NATIONAL AND REGIONAL LEVELS IN LATIN AMERICA ..... 37

At the national level ..... 37

At the regional level ..... 40

ANNEX 1

1. Agenda ..... 41

2. Chronogramme of the meeting ..... 42

3. Topics for discussion ..... 43

4. Organization of discussions in working groups ... 47

ANNEX 2

List of participants ..... 48

## I - PRECEDENTS AND DEVELOPMENT OF THE WORK OF THE MEETING

1. The regional meeting on environmental education for Latin America and the Caribbean was held in Bogotá, at the Instituto Colombiano for Higher Education, from the 24th to 30th November 1976. Organized by Unesco, with the co-operation of the United Nations Environmental Programme (UNEP), the Colombian Government and a financial contribution from the Konrad Adenauer Foundation, this meeting is part of a series of similar events foreseen for each region of the world in the international programme on environmental education (UNESCO/UNEP), as preparatory steps leading to the Intergovernmental Conference on Environmental Education, which will be held in October 1977.

All these regional meetings had as a starting point and frame of reference the discussions and recommendations of the International Workshop on Environmental Education held in Belgrade (October 1975), the first in the series of international meetings of experts within the UNESCO/UNEP programme.

2. Goals

The basic goal of the regional meetings was to examine the problems of the environment in each region and to recommend lines for action in environmental education, which were to bear in mind the specific characteristics of natural surroundings, socio-economic and cultural settings of each region and of the countries that form the region.

Within the general perspective, the following objectives were defined for the meeting:

a) To identify and formulate the general characteristics of the environmental problems of the region and their implications, be they of an ecological, social, economical, political, esthetic, legislative or ethical nature, which should be taken into consideration for short- and medium-term actions.

b) To adapt and revise, in accordance with regional conditions, conclusions and recommendations on environmental education formulated by the Belgrade Workshop, in order to establish norms for actions which conform to the reality of the region.

c) To analyse activities and experiences in environmental education in the general setting of regional activities and goals in this area.

d) To develop and strengthen the intra-regional exchange of information and personnel in order to foster an exchange of experience, helping both to define policies in environmental education and to put into practice strategies and plans of action.

e) Based on the above goals, submit proposals and recommendations to the Director-General of Unesco, for the further implementation of Unesco's environmental education programme, including the Intergovernmental Conference on Environmental Education (1977), and also for the benefit of governments, intergovernmental institutions who might be interested, in order to promote the development of environmental education, on a regional as well as on a world level.

3. Participants

Unesco invited, in a personal capacity, experts from all the Member States in Latin America and the Caribbean. Experts came from Argentina, Brazil, Colombia, Barbados, Chile, Ecuador, Venezuela, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, the Dominican Republic, Surinam, Uruguay, Trinidad and Tobago.

The specialized bodies of the United Nations, the Economic Commission for Latin America, the Organization of American States (OAS), and the Secretariat of the Andrés Bello Agreement were invited to send observers.

4. Preparations for the meeting

The meeting was prepared jointly by Unesco and the Government of Colombia. On behalf of the latter, the Committee of Environmental Education of the National Commission for Co-operation with Unesco was in charge of the preparatory work, in co-operation with the Ministry of Education, the Colombian Institute for the Development of Higher Education (ICFES), the Institute for Renewable Natural Resources (INDERENA) and of the Colombian Institute for Scientific Research, (COLCIENCIAS).

5. Documents used at the meeting

The following documents, prepared especially for this meeting, were made available to the participants:

- Needs and priorities in environmental education in Latin America and the Caribbean, prepared by Unesco;
- Environmental problems in Latin America and the Caribbean; prepared by Mr. Luis Capurro, Unesco consultant;
- Education and environment in Latin America, prepared by Ms Mirta de Teitelbaum, Unesco consultant.

Furthermore, the following documents of reference were available to the participants:

- Charter and recommendations of the International Workshop on environmental education. (Belgrade, October 1975);
- Report on the sub-regional seminar held in Chosica, Peru, in March 1976;
- the Unesco publication: Moving Towards Change
- Some trends in environmental education (documents prepared for the Belgrade Workshop);
- Engineering and environment (ROSTLA);

- Educational module on the environment. From the Book: Integrated science teaching in Latin America - No. 2", (ROSTLA);

- Report on the Conference of Ministers of Education and Ministers in Charge of the Furthering of Science and Technology as related to Development in Latin America and the Caribbean (Venezuela, 1971);

- Report on the meeting of experts on application of the recommendations of the Conference of Ministers of Education and Ministers in Charge on the Furthering of Science and Technology as related to Development in Latin America and the Caribbean, (Venezuela, 1971 - Panama, 1976).

6. Opening session

The opening session was honoured by the presence of the Minister of Education, Dr. Daniel Ceballos, of representatives from several national institutions and international bodies active in Colombia.

Mr. Simon Romero-Lozano, Chief of Environmental Education Programme of Unesco, welcomed the Colombian authorities and the participants on behalf of the Director-General of Unesco, summing up the goals of the meeting and the results expected from it. He referred to the medium-term plan, approved by the 19th General Conference of Unesco, where the main problems and concerns of the world and of contemporary society are identified, followed by the goals and general lines of action which will guide the steps to be taken by Unesco in the near future. Mr. Romero-Lozano explained that, among the 10 problem areas defined and spelled out in objectives and priorities for action, there was one related to "man and his environment" which stresses the contribution of education toward a better individual and collective behaviour related to environment, through an integral and practical knowledge of the elements constituting this environment, as well as of the interrelationship among these elements. The creation in mankind of attitudes and ability to adopt a rational and positive behaviour towards the environment, which is indispensable for survival and the improvement of the quality of human life on our planet are also stressed in this objective.

- Mr. Romero-Lozano also referred to the main topics which the meeting would deal with, both as concerns goals, characteristics, contents and methods of environmental education, and as concerns strategies to incorporate environmental education into the general educational process.

- Mr. Klaus Schaeffler, representative of the Konrad Adenauer Foundation, explained why this institution was interested in the international programme on environmental education and had assisted financially this meeting, on a topic and a problem of vital interest to mankind and to our present society.

He stressed the fact that this was the first time this Foundation cooperated in an activity sponsored by an international organism, and said he hoped it might be possible to continue with similar initiatives in the future, related to the international programme on environmental education.

- Mr. Anastase Diamantidis, the representative of the Programme of the United Nations for Environment Education (UNEP) thanked, on behalf of Mr. Tolba, Executive Director of UNEP, the Government of Colombia for having helped in organizing and carrying out this regional meeting on environmental education, and pointed out briefly the importance of this topic for countries in the region, in the context of their socio-economic and cultural development. He thereafter thanked the participants for having so enthusiastically accepted to be present at the meeting, and to point out the impact the opinions and recommendations formulated at the meeting would have on the international programme of Unesco/UNEP on environmental education. He finally wished them success with the work about to be started.

- Dr. Daniel Ceballos, Minister of Education of Colombia, took the floor and welcomed participants and observers in the name of his Government. He was pleased that such an important meeting, important both as concerns its topics and the high qualification of the experts present at it, was convened in Colombia, a country where numerous institutions have started implementing programmes and educational actions related to the environment.

Dr. Ceballos mentioned some concepts of the relation among nature, mankind and society, summing up his thoughts making a reference to the well-known saying "mens sana in corpore sano", which he thought could in this case be interpreted as "healthy man in a healthy environment", referring to a healthy human, physical, social, moral and spiritual environment.

He invited the participants, scientist and educators of the country to give a strong priority to strategies and actions so that environmental education may be given to the children who are the future builders of our society. Dr. Ceballos said that maybe Colombia was not yet in a condition, despite their efforts so far, to show the foreign experts great achievements in the theme of this meeting, but that they would find a nation with an infrastructure and a democratic spirit which would be fruitful for their discussions. The Minister of Education expressed his wishes for a successful meeting, and declared the meeting oficially inaugurated.

7. Organization and development of the work

Board of directors - At the first plenary session, the meeting elected its directive board. The following were appointed unanimously: Dr. Alfonso López Reina, from Colombia, President; Mr. Richard Morris Thelwell, from Jamaica, first Vice-President; Ms. Zonia Eneida Gallardo, from Panama, second Vice-President; and Mr. Miguel Azcueta, Rapporteur.

8. Agenda

From then on, the work of the meeting adopted the following agenda:

- Introduction of the international environmental education programme;
- Introduction of the environmental problems of the region;
- Introduction of trends in environmental education within the region;

- Environmental education in Latin America and the Caribbean;

- Environmental education within formal education;

- Strategies for strengthening environmental education in Latin America and the Caribbean.

9. Introduction to the international programme on environmental education of UNESCO/UNEP

Mr. Romero-Lozano, Unesco official and Chief of the Programme, made a short statement which can be summed up as follows:

a) Origin and characteristics of the programme

The international programme on environmental education is a joint UNESCO/UNEP enterprise, which was launched in January 1975, and which intends to accomplish the first phase of its work between now and December 1977.

The programme was created as a concrete response to the Recommendation 96 of the United Nations Conference on the Human Environment, where it was set forth that "The Secretary-General, the organizations of the United Nations system, especially Unesco, and other international agencies concerned, should, upon consultation and in agreement, take the necessary steps to establish an international programme in environmental education, inter-disciplinary in approach, in-school and out-of-school, encompassing all levels of education..."

This programme is at present being carried out by a technical-operational unit, which consists of ten professionals from different disciplines, coming from different regions of the world. This unit aims at creating and developing activities and programmes, working very closely with other divisions from the Education Sector of Unesco and also from the Sectors of Natural Sciences and Social Sciences that work on matters related to the human environment and environmental education. The fact that the medium-term plan

of Unesco includes environmental education as one of its fundamental goals, helps integrate even better the action of the Organization, and will also help intensify the co-ordination of activities in the field of human environment.

b) The goals of the programme are:

(i) To promote and intensify the exchange of ideas, information and experiences among countries and different regions of the world on matters of environmental education;

(ii) To promote the development and coordination of research processes leading to a better understanding of the goals, contents and methods of environmental education;

(iii) To design and evaluate new methods, plans of study, instructional material and programmes in the field of environmental education;

(iv) To train and improve specialized personnel needed to expand environmental education: teachers, professors, researchers and educational administrators;

(v) To give technical assistance to countries desirous to promote programmes in environmental education.

c) Scope of activities of the programme

The activities of the programme can be divided into three functional categories:

(i) Research, experimentation and application of innovations in the field of environmental education

The actions in this category are carried out through a series of pilot projects. By early 1977, 17 such projects were operating in Africa, Latin America, North America, Asia, the Arab States and Europe.

These pilot projects had been selected because of their innovative possibilities, following a criterion of weighted distribution, bearing in mind the scarcity of resources available to the programme;

(ii) Gathering, systematizing and spreading of information on environmental education

In this category, the main activity consists of the building-up and development of a world-network to circulate information relative to institutions, activities and programmes of work in environmental education, which would facilitate distribution of, and access to, information.

At present, there are more than 7.000 units of information in the network system. The programme foresees the publication of 2 handbooks on environmental education services: one dealing with institutions, and the other with individuals active in environmental education.

Under this programme a periodic newsletter, "Connect", is prepared. It appears in English, French and Spanish, and gives information on activities of the programme, and on important events in the field of environmental education, on a world-scale, or a regional- or national-scale. This bulletin reaches at present 10,000 persons all over the world.

(iii) Setting-up of policies and strategies to improve the development of environmental education

This category of activities of the programme is implemented through a series of meetings on environmental education, starting with the International Workshop of Belgrade; followed by five regional meetings, like this one in Latin America, and culminating in the Intergovernmental Conference on a world-scale which is to take place in the USSR in October 1977.

An additional activity was the undertaking of a world-wide study of "Needs and priorities in environmental education" carried out by means of a questionnaire which was answered by 111 Unesco Member States and "ad hoc" missions of consultants who visited 82 developing countries in 1975. The results of this survey were grouped by regions and were submitted as background information at the regional meetings. A synthesis of this information will also be used at the Intergovernmental Conference in 1977.

(iv) Perspective for the programme

At present, Unesco has already started working on the preparations for a follow-up project which will be submitted to UNEP in early 1977, and which will include foresights for the second phase of the programme. It is expected that the Intergovernmental Conference may formulate guidelines for the execution of the programme in its second phase on the international, regional and national levels.

10. Introduction to the document prepared for the meeting on the international programme

- Mr. Luis Albala, specialist of Unesco, talked about the problems of environmental education in the region, placing special emphasis on the lack of adequate curricula, instructional materials, systems for training teaching personnel and organizational structures to reinforce the educational process; as well as the insufficient development of environmental education with an inter-disciplinary approach leading to problem-solving, and open to everybody. Mr. Albala underlined the need for systematic research-processes which would eradicate the deficiencies of the educational processes, which constitute an obstacle to the proper development of environmental education.

- Dr. Luis Capurro, Unesco consultant, made an exposé with slides, where he analyzed the determinant factors and specific characteristics of the environmental problems in Latin America and the Caribbean. He pointed out

some key-aspects of environmental education, which, due to their importance, should be borne in mind when planning and designing a policy for environmental education in the region.

He gave an analysis of the determinant factors of environmental problems in the region and of the general difficulties to be expected in the resolution of such problems, factors which might slow down or counteract the development and execution of adequate environmental educations plans.

11. Setting-up of the working groups

The meeting decided to structure its work by splitting up into interdisciplinary groups. Each group was to study different points of the agenda and bring its recommendations and conclusions to the plenary sessions. Then a chart was shown giving the distribution of topics by groups, indicating names of their coordinators and rapporteurs.

| | | |
|---|---|---|
| TOPIC 1 | (Point 6 of the Agenda) | (Groups 1 and 2): Environmental education in the context of ecodevelopment and life-long education in Latin America and the Caribbean |
| Coordinators: | | Hernán Contreras, Venezuela<br>Alfonso Lazo, Chile |
| Rapporteaurs: | | Octaviano Trujillo, Ecuador<br>Mabel Stockle, Argentina |
| TOPIC 2 | (Point 6(i) of the Agenda) | (Group 3): Environmental education in the context of innovation and reform of the formal educational systems |
| Coordinator: | | Hernán Contreras, Venezuela |
| Rapporteur: | | Mary Luna Santos, Colombia |
| TOPIC 3 | (Point 6(ii) of the Agenda) | (Group 4): Non-formal environmental education in the perspective of life-long education |

| | |
|---|---|
| Coordinator: | Alfonso Lazo, Chile |
| Rapporteur: | Maritza Jiménez, Bolivia |
| TOPIC 4 (Point 7 of the Agenda) | (Groups 5 and 6): Institutional strategies for the development of environmental education at the national and regional levels in Latin America and the Caribbean |
| Coordinators: | Hernán Contreras, Venezuela<br>Alfonso Lazo, Chile |
| Rapporteurs: | Miguel Estévez, Dominican Republic<br>Yolanda Moreno, Peru |

The work of the groups will be carried out as shown in the chronogramme appended to this report.

12. Approval of the final report

Based on the reports of individual working groups and the points discussed and further refined during the meeting, a pre-project of the final report was prepared and discussed; it was approved at the last plenary session of the Meeting.

At the same time, Unesco was requested to prepare a more polished version of the report, using as a starting point the approved pre-project, working documents of the meeting and opinions heard during the discussions. This revised report would be submitted for consideration of the participants, who would send their comments and suggestions to the Unesco Secretariat, in order to contribute to the final version of the report.

13. Closing of the meeting

The meeting was officially closed on 30 November. Mr. Simón Romero-Lozano, Chief of Unesco's Environmental Education Programme, thanked the Government of Colombia for its hospitality in hosting the meeting and for having so efficiently given it support both morally, materially and intellectually; he also thanked the participants for their cooperation and good efforts which were essential to the attainment of the goals of the meeting.

The participants expressed their satisfaction with the results obtained during the meeting and thanked Unesco and the Government of Colombia for having made it possible for them to come to the meeting.

Lastly, the Minister of Education, Mr. Ceballos, took the floor and thanked the particpants for their constructive work; he also thanked Unesco for its important undertaking in the field of environmental education, and expressed his Government's satisfaction with the results obtained during the meeting, which will be an important step towards the development of environmental education in Latin America.

## II ENVIRONMENTAL EDUCATION IN THE CONTEXT OF ECODEVELOPMENT AND LIFE-LONG EDUCATION IN LATIN AMERICA

### 1. Preliminary thoughts

The notion of environment is very complex since it encompasses the whole planet and its elements - both natural and artificial, organic and inorganic - at different levels of evolution determined by man and his ways of societal organization. Environment also comprises the network of inter-relations among the elements, which makes them mutually dependant and also mutually influential. Man, as a social being organized and living within and through social groups of which he forms part, is able to take decissions which will transform his surroundings, and consequently he is responsible for spoiling or improving this environment. He therefore must engage himself on both an individual and a collective basis, to conserve, to use rationally and improve his environment, this being an indispensable condition for survival and a progressive improvement of the quality of life. Therefore, the meeting adopted as a term of reference for its debate the concept of ecodevelopment, to be interpreted as a process of planned change, taking into account the interactions among and within social systems and natural ecosystems, in the definition and execution of policies and strategies for development, in order to achieve a constant improvement of the quality of the environment and of life itself. In this perspective of ecodevelopment are comprised ecological, social, economic and cultural aspects. Combined and interrelated in the right way they can respond to the demands for accelerated and stimulated development, on a medium and long term basis, which will allow a better way of meeting the needs of human environment in developing countries.

The objectives and priorities set forth by each country in the process of its ecodevelopment planning, both in over-all terms as well as in each sector of the political, economic, social or cultural life, should serve as an adequate setting for environmental education. This will make it possible to define the orientation of the education, more precise (adequate and well-defined goals) to the content and the methodology of environmental education.

2. A setting for environmental education in Latin America and the Caribbean

The regional meeting identified and enumerated the main characteristics of the environmental problems in Latin America and the Caribbean: social, economic, political, legislative, ethical, esthetical aspects, that may be dealt with in the short, medium and long run. An exchange of information on on-going or finished experiments took place, covering geographical zones and common areas of interest.

Many of the problems thus identified are similar to those of other countries of the developing world and form part of the general framework as it appears on a world-scale. These common problems reflect:

a) the economic gap between developed and developing countries;

b) coexistence, within one and the same society, of patterns of extreme richness and extreme poverty, which implies a low quality of life for the major part of the people whose basic needs are not satisfied.

Malnutrition, poor sanitary conditions, illiteracy or low educational levels, persisting unemployment and underemployment, the scarcity or inadequacy of housing and overcrowding, frequent endemic and parasitary illnesses, lack of water and other basic services, lack of opportunities of training, lack of adequate social security, etc., are some of the most evident symptoms of underdevelopment;

c) the unbalance between the accelerated demographic growth, the geographical distribution of resources and the social distribution of gains is an obstacle to the improvement of the quality of life, and in many cases, leads to a deterioration of the levels attained so far;

d) the increasing awareness that, with the guiding principles of the new international economic order, it is impossible to attain modalities of development which are independent and reasonable from an ecological point of view. The traditional patterns turn out to be inadequate and unable to resolve the problems of underdeve-

lopment and, consequently, the problems of human environment. Besides what is already mentioned, there are other problems, which appear with a varying intensity in the majority of the Latin American countries;

e) the existence of social and regional inequalities; one of the most evident manifestations of this being coexistence of sectors with life and consumer standards similar to those of developed countries, siding with levels of mere subsistence. Together with an important increase in the gross national product, a consequence of the use of modern techniques in industry and the subsequent increase in the capacity of production, 100 million persons continue living in an extreme poverty, without receiving more than a minimal percentage of this increase and without any possibility of satisfying their basic needs.

f) the over-exploitation of the renewable natural resources, and also of the non-renewable ones, reflected in an indiscriminate destruction of the vegetal cover, especially in the forests; the uneven distribution of the ownership of farmland, and the mismanagement of fertile soils, have all led to very accelerated processes of erosion, to the creation of dunes and to the desertification of immense territories. The lack of technical studies and adequate technology in conformity with the reality of our countries, and, in many cases, a lack of national, endogenous mining policies, are other obstacles to an adequate exploitation of these riches, which could be of real benefit to the country.

g) the extraordinary acceleration of the urbanizing process, is not supported by adequate planning based on systematic studies which would permit a better spatial distribution of the population. The immediate consequences are the urban deterioration, marginality, lack of basic social services, overcrowding , creation of misery-belts around the big cities, and living conditions that do not respect human dignity. Concomitantly, we find a flow of people from the countryside towards urban centres, which implies abandonment of agricultural activities and smaller settlements in non-metropolitan areas.

h) the pollution of the environment begins to affect the big urban concentrations and certain key points of the region, where industrial centers are developing. This is detrimental to the quality of life and destroys many animal and vegetal species. Lack of knowledge about ecosystems and their management and also an absence of policies and legislation aiming at preserving the harmony and avoiding deteriorations, seriously endangers the quality of present and future life in the region.

i) In the case of the Caribbean islands, whose ecosystems are even more fragile than those found on the continent, and whose territorial resources are very limited, the population has to turn to the Caribbean sea, a sub-regional resource shared with others in the region, leading to a need for a sub-regional policy of conservation and cooperation in order to employ these resources in a rational way.

The role of environmental education seen within this context, if that of a tool helping people to become aware of the phenomenon of underdevelopment, as well as of its environmental implications.

At the same time, it must help create a national and regional ability to study the problems of underdevelopment in depth and to reflect upon how to combat it efficiently, in order to find solutions which take into account the multifaceted aspects which influence these problems.

3. Goals of environmental education

Environmental education is an essential element for any process of ecodevelopment, and as such it must provide adequate knowledge for the individuals and communities who posses the necessary intellectual, moral and technical abilities allowing them to perceive, understand and efficiently resolve the problems generated in the process of dynamic interaction with the natural environment and the man-made environment (be it through human material enterprises, or socio-cultural structures).

Therefore, environmental education must be conceived and put into practice as an integral part of the over-all processes and educational systems found in society. On a national level, it must be considered as a tool which can be used for creation and participation, and which permits to integrate the educational system within national plans for environmental improvement, stimulating a current of steady interchange among educational institutions and other sectors of the community.

The specific objectives of the process of environmental education are:

a) Acquisition of knowledge which will permit to assimilate, with all its many varieties and present and future implications, the local, national and world-wide consequences of the environmental problems. This kind of knowledge opens new perspectives to the learner, which transcend values such as success or immediate satisfaction in order to span overthe whole social context as it is at present, and make projections into the future.

b) Development of environmental values and individual and collective attitudes in order to create a more harmonious, positive and permanent interaction between man and his man-made environment on the one hand, and the natural environment, on the other hand. Environmental education intends to overcome the usual coercive rules established by external forces through the design of an internalized self-discipline which can lead to a more efficient interaction between humans and their environment.

c) Development of scientific skill and knowledge, as well as social and technical abilities, which will allow individuals and communities to participate as citizens and partners in different social groups (of workers, scientists, technicians, politicians, planners, etc) in the solution of environmental problems of any place at any time.

4. Structural characteristics and methodologies

The achievement of the above-mentioned objectives implies structural and methodological changes in the educational process and systems which are essential to carry out environmental education.

a) Global and integrated approach

The analysis of the environmental problems must be made within the general context in which this problem is immersed and which gives it its true meaning and scope. This is to say, that the problems cannot be envisaged separately, but must be considered within the multifaceted network of interrelations and mutual influences which links it to other problems and phenomena.

b) Interdisciplinary approach

The kind of knowledge, attitudes and abilities which must be promoted by environmental education demands the transcending of the traditional dichotomy between the social science and natural sciences, and within them, the splitting up into disciplines and subject matters which are perceived as distinctly separate compartments.

c) Innovative methodology

Environmental education requires the use of a new educational methodology which will be fit for developing a global and integrated vision in the learner of factors, their implications and interconnections, and at the same time, skills which will allow the learner to manage this reality. Problem-solving methods respond to this need (the learner participates in the identification of environmental problems, research and implementation of the conclusions) where the environment is, at the same time, a tool for, and an object of, the educational process. The environmental problems are identified and studied directly on the spot, together with the community concerned, drawing on all possible resources of the environment (direct observations, communication among persons, technical and scientific means, etc), possible alternative solutions are analysed, discussed and evaluated

technically and morally, and finally conclusions are drawn which will lead to decisions for action, aiming at improving the environment.

d) Structural flexibility

Environmental education, given its characteristics approaches and methodologies, surpasses the traditional boundaries between formal and non-formal education, since it requires and permits a variety of methods and activities which combine procedures formerly particular to only one type of education.

e) Participation

Environmental education promotes participation of the whole community in the educational process, since linking school and community is an indispensable condition for the learner to establish contacts with his surroundings, and to facilitate a permanent inter-action amongst them.

f) Permanent adequacy and continuity

The world in which mankind lives changes constantly. The diverse aspects of natural and man-made environments are modified with time, defining new biophysical characteristics and new social and cultural structures, and therefore, new problems. Environmental education must be permanently adapted to these aspects, in order to provide an adequate answer to the new situations.

## III ENVIRONMENTAL EDUCATION AND EDUCATIONAL SYSTEMS IN LATIN AMERICA

### 1. Present situation

After having called attention to some characteristics and main objectives of environmental education in Latin America, the participants of the regional meeting made some remarks concerning the general state of education in the region, point pointing out features that were for or against the development of environmental education.

Environmental education does not simply mean the inclusion of a new subject matter or a new series of topics in the traditional school-programmes, but it means the incorporation of new approaches, contents and methods into the educational system. This will also require structural changes of the educational systems. Therefore, the processes of educational reform which have been initiated in many countries constitutesan opportunity not to be discarded for making environmental education one of the explicit goals and one of the integrating pivots of educational processes.

The participants agreed in pointing out the following factors which might contribute to the development of environmental education in the region:

a) The existence of a very extended consciousness that it is necessary to introduce some changes into education which will put it into a closer and more direct contact with the environment where the educational process takes place. The idea is based on the evident need to use education as a tool for development and improvement of the environment.

b) The existence of educational reform processes in several Latin American countries; whose general goal is found in a) above, will also tend to modify the whole structure of the formal system.

c) The implementation of some efforts tending to introduce, even if at first only partially, and insufficiently, environmental education into the study plans of the formal systems.

d) Development by governmental and non-governmental organizations, of actions tending to modify, not only contents, but also the methodology of environmental education. These efforts, nonetheless, are still scattered and uncoordinated.

Despite the preceding favorable climate, there are still numerous obstacles to the development of environmental education in the region; it is necessary to identify these hindrances in order to define more efficient strategies for action.

We can make a distinction between obstacles derived from ideas about education, on the one hand, and those which are inherent to the system and structures, on the other hand.

2. Hindrances to the development of environmental education deriving from concepts of education

a) Traditional approaches still prevail and lead to the consideration of education as a reality and a process cut off from other social realities and processes, as a closed self-sufficient system as far as objectives, contents, methods and resources are concerned. This is evi evident in the field of educational planning, which is not coordinated with the planning of other sectors, and does not conform to the objectives and context of general development plans. As a consequence, educational institutions are isolated from their environment. From a pedagogical point of view, this implies an essentially theoretical way of teaching; and to a learning which is alien to reality.

b) there is also a manifest tendency to copy cultural patterns from abroad and to define contents of education in accordance with standards from countries at an advanced industrial level, rather than creating and designing

proper models that respond to national and local needs.

c) There is some resistence to perceiving the school as an organism integrated within the general social context in which the school ought to participate. Schools remain closed to participation of those who do not professionally belong to their sphere, thus loosing the possibility of benefiting from the knowledge of the whole community, which would be a valuable learning resource.

3. Hindrances to the development of environmental education inherent to the educational system

Among these hindrances, we can distinguish those related to:

Curricula

a) As a consequence of the trend to define education in accordance with standards from countries at an advanced industrial level, curricula and programmes tend to imitate those prevailing in countries with structures, ways of life and needs that differ greatly from those in Latin America.

b) Each subject matter has an independent programme, uncoordinated with the others; this leads to an incoherent type of learning, which cannot be applied to the solving of concrete problems.

c) The natural and the social environment are dealt with by two groups of disciplines - natural sciences and social sciences - which seem to be totally unconnected. This gives a distorted and incomplete vision of reality, making it impossible to envisage the environmental problems in a scientific and integrated manner.

d) The approach to the different subject matters is mainly theoretic; the practical exercises included in the curriculum are always limited to partial themes or phenomena. The always complex and interrelated themes and problems of real life are not developed in the programmes of study.

Instructional materials

Several limitations mentioned with regards to curricula, also apply to the instructional materials prepared to complement this curricula. For instance:

a) they are often not adapted to local and national needs;

b) they are urban centred, this means that they always refer to big cities, with cultural standards and ways of life that greatly differ from those to be found in rural zones;

c) their splitting-up into subject matters prevents an interdisciplinary approach. Learners do not perceive reality as a dynamic process with multifaceted interconnections and influences among and within the factors;

d) they are treated and designed in a theoretical-abstract way, alien to the real environmental problem.

Training and teaching personnel

Some of the points mentioned above are characteristic to the training and teaching personnel in the region; some examples more specific to the latter are:

a) training programmes are basically theoretical-abstract ignoring subjects and problems of the local and national environment;

b) methods of research and observation are also ignored and the training programmes are cut off from the surroundings;

c) lecturing methods with scarce exchange between teachers and students are employed;

d) there is an insufficient of training in modern educational methodology, based on participation, research and practical experiments conducive to problem-solving. The new methodological approach is learner-centred,

and the concept of "learner" now comprises teachers, members of the community and all those participating in the educational process; this is in opposition to the traditional teacher-centred techniques;

e) training programmes tend to be devoid of a global vision, as a consequence of their monodisciplinary character. This leads to over-specialization and a narrow unilateral perception of reality and a fragmented approach, inadequate in the comprehension of the many interrelations and reciprocal influences that connect different subjects and problems;

f) there is a general ignorance of modern techniques and methods of evaluation, indispensable for pedagogic actions centered on learning and which submits the educational process to constant evaluation and reprogramming, in accordance with the results of the evaluation; and

g) teachers throughout the region are in general not used to team-work nor to exchange ideas and points of view with other sectors of the community who could and should participate in the educational process.

Structures and administration of the educational system

Hindrances to the development of environmental education are also caused by general insufficiencies in the administration of the educational system, such as:

a) lack of dynamic planning, adapted to national and local needs;

b) lack of administrative planning, making it impossible to use the available educational resources optimally;

c) loyalty to old structures of rigid timetables and evaluation through exams;

d) a lack of full-time personnel, who could coordinate the different subject matters, plan activities and devote time to their own training and re-training;

e) school remains isolated within its walls, devoid of contact with the community and its problems; and

f) a lack of a system of consultations, communication and participation between the different educational practitioners, spanning from authorities, planners and administrators to school-teachers and pupils.

## IV STRATEGIES TO INTRODUCE AND DEVELOP ENVIRONMENTAL EDUCATION IN LATIN AMERICA

### 1. General ideas on the setting which the strategies must match

In Latin America, environmental problems are closely connected with development problems. Therefore, the environment in this region cannot be conserved without bearing in mind the needs of a development which will satisfy basic needs of its people and constantly improve the standard of living in the region. On the other hand, development without considerations of the environment, both in its present and future state, cannot be considered as a possibility either.

It would be a misjudgement to believe that conservation of the environment constitutes an obstacle to development. On the contrary, it constitutes a step within the planning process, which does not curtail but normalizes this process. In order to achieve this conservation, it is necessary to be well acquainted with the characteristics and needs of the environment and of the ecodevelopment of the region.

For the above reasons, environmental education is called upon to play an important role in ecodevelopment programmes, whatever be the field they are aimed at: agriculture, industry, society, culture, hygiene, etc., since it makes it possible to acquire the knowledge, values and abilities needed to give way to coherent and adequate planning with an application that relies on active participation of people belonging to any age, sector and professional area.

To attain these goals, it is necessary to undertake important studies and research work, which will bear on environmental specific topics (such as, for instance, development of ecotechnologies, systems of detection and control of diverse forms of pollution, technology for the recycling of waste, etc), as educational subjects related to the contexts, methods and structures of education which will be the most fit to reinforce ecodevelopment plans. The research work in this field should ideally be carried out through pilot projects which will make it possible to evaluate its efficiency and feasibility, and which will also facilitate, at a later stage, the diffusion of innovations.

Each country must study its own priorities and set up the most adequate guidelines for their policy of national development, since even if some problems are common to the whole region, there are also characteristics and needs which differ according to the area, country or place under study.

Without counterdicting the above, some general guidelines can be drawn up for environmental education in Latin America which will in each case be adapted to the conditions, needs and priorities of each specific country or area. In accordance with the objectives and factors just mentioned, if one wishes to succeed in the task of adopting environmental education in the region and making its application give a satisfactory return, it will be necessary to pay attention to some characteristics and approaches conducive to this goal. Therefore, environmental education, in all its forms and all its levels, ought to:

a) establish universally-valid notions and concepts for the co-existence and harmony among men, and between men and nature, taking as a starting point the specific needs proper to each country or place;

b) be closely connected with national, regional and sub-regional plans for development;

c) be included in all the plans of educational reform in the region, in harmony with the goals of the reform, proposing at the same time changes of approach and structure as required by local needs in environmental education;

d) be conceived as a life-long educational process, integrated and interdisciplinary, which trascends the traditional rigid separation between formal and non-formal education, in search of a functional linkage of the educational effort through innovation and methods which combines adequately with the traditional procedures in both fields;

e) at a national level, aim for an optimum return of the educational effort, through coordination of the different institutional organisms that plan development and education, in programmes belonging both to the public and to the private sector;

f) promote participation of the community at the different stages of the educational process; the community is a consumer of education, on the one hand, and a source and tool for learning, on the other hand;

g) be oriented towards problem-solving, that is, take into consideration environmental problems which affect the learner, around whom the educational process is centred (the learner identifies, selects and makes research on the environmental problems in order to formulate alternate solutions, which then will be evaluated in accordance with ethical and technical norms, and finally - if possible - applied);

h) promote research, experiments and application of an innovative teaching methodology, based on modern scientific discoveries on the acquisition of knowledge, values and abilities proper to different ages and stages of learning.

What preceeds does not pretend that all such conditions must be satisfied before beginning to apply environmental education in the region. These are only guidelines or models to ensure a maximum and stable development of environmental education with the biggest possible multiplying effect. As a matter of fact, such changes will take time and some short-term activities - such as the introduction of learning modules on environment at primary and secondary levels, in university courses, etc - will surely be forerunners to all-round in-depth changes. It would be misleading, nevertheless, to believe that the aims of environmental education can be achieved through mere introduction of a new discipline or specific subjects into some other disciplines; this cannot make up for an interdisciplinary learning, oriented towards the solving of environmental problems.

It is indispensable to think of the hindrances to a full and immediate application of all the approaches and methods for environmental education; for a start, the most feasible short-term strategies must be applied, without leaving out of sight the long-term goals.

In this sense, as we said above, it is necessary to eliminate the barriers between formal and non-formal education. Each of them has, for the time being, specific features and needs. This explains why the participants preferred to devote part of the discussions to a review of some particular aspects of formal and non-formal education.

2. Some requirements of environmental education proper to the formal educational system

As far as study programmes are concerned:

a) it will be necessary to prepare study programmes for the primary, secondary and tertiary levels (with emphasis on teacher training) which take into consideration the needs and problems of the national and local environment;

b) these study programmes ought to promote a closer contact between the learner and his environment, through a process of observation, sensitizing, analysis and critical reflexion leading to the improvement of the environment and man's relationship with it;

As far as personnel is concerned

All educational practitioners: authorities, planners, administrators, teaching personnel or school-service personnel, should have some training in environmental education, not only in its contents, but also in the methods and approaches that are applicable to it. It would thus be desirable to:

a) restructure private primary-education institutions, as well as secondary and university ones, especially those training teachers, so that they may fulfill the conditions necessary to apply study plans and methodologies promoting environmental education;

b) design and execute in-service training programmes, in order to up-date teachers as regards contents, methods and orientation of environmental education;

c) design and work out training programmes for higher education personnel, especially planners and teacher-trainers, given the importance this implies for reproducing and disseminating faster and more efficiently the experiments of practical application of environmental education;

d) broaden the scope of education bringing into it all those (specialists, workers, farmers, craftsmen, etc) who may bring or transmit their messages in order to achieve the goals of an education open to environment;

e) disseminate teacher-training programmes in environmental education in different regions of each country, by means of mobile units, seminars, meetings of teachers, planners etc.

<u>As far as instructional materials are concerned</u>

It would be necessary to design new instructional materials for environmental education using local resources and techniques, as well as modern technology for social communications. In this respect, it would be desirable to:

a) promote the preparation of instructional materials adapted to the needs of the local and national environment, using resources, techniques and abilities found in the region or nation, through participation of students, teachers and the community;

b) set up workshops for research and preparation of teaching aids for environmental education, where needs of the national, regional and local environment are taken into account and using endogenous cultural elements, alongside with the most recent scientific progresses in matters of education, environment, and technology;

c) prepare models for radio, television and film programmes which might be useful both in school (at different levels), as well as in the environmental education of the community;

d) encourage artistic means of popular expression, such as theatre, puppets, craftmanship, music, etc., integrating them into the methodology of environmental education.

As far as evaluation is concerned

a) it would be necessary to seek new approaches and methods for evaluating the educational process, concerning both pupils, teachers and other partners of the educational community, the study programmes which are being prepared, team work, instructional materials and the instruments for self-evaluation. In this respect, it would be necessary to work out alternate forms to replace or complete the evaluation system by examinations (traditionally tied to structures of formal education) according to the demands of the approach taken by environmental education;

b) it would be necessary to integrate evaluation systems into all environmental education programmes, both those carried out by specialists, as well as those carried out by participants of the programme;

c) it would be necessary to develop systems of self-evaluation, where all the partners of the educational community intervene (teachers, students, members of the community, specialists).

d) it would be necessary to pay special attention to the evaluation of experimental projects in environmental education.

As far as the organization of school and university work is concerned

a) it would be necessary to promote the work of teams of teachers, in order to ensure an interdisciplinary approach, integrated and coordinated with the subjects and problems proposed in the study programmes;

b) it would be necessary to give the school system more flexible structures, as concerns timetable, distribution of workload, etc;

c) it would be necessary to increase the number of full-time teaching personnel, this being an important pre-condition for an interdisciplinary integration, coordination of activities, closer contact with pupils and the community, and a true identification with the purposes and approaches of the environmental education programmes.

d) it would be necessary to broaden the area of learning beyond the walls of the classroom, towards the total environment, natural and social; this will make it possible to carry out observations and experiments in the field, and imply the consideration of the environment not just as a topic for learning, but also as a source and an instrument to learning;

e) it would be necessary to associate more closely the educational institutions with the community, through participation and cooperation in environmental education programmes;

f) it would be necessary to broaden the concept of the learner; to include all those who participate in the educational process, be they teachers or not, who carry out functions in school or out-of-school.

3. Some basic aspects of non-formal environmental education

Non-formal education takes place outside the school or university system, through all kinds of activities and by means of institutions whose aim often is not primarily educational, but who consider education as an important part of their action.

The institutions which impart this non-formal education may be public or private (school and universities can be found among them) and their non-formal programmes are different from the formal educational process in the sense that they allow for a greater flexibility of timing, prerequisites for admission, sphere of learning, etc. Institutions which implement non-formal educational programmes can include such non-specifically educational groups as workers' syndicates or professional unions, farmers organizations; religious,

community, civil, youth movements; institutions for agricultural development that have study programmes in the field of farmers' education, etc.

Coordination of non-formal environmental education programmes

In Latin America and the Caribbean the non-formal education programmes are manifold and the institutions which carry them out are very dissimilar, both as concerns their objectives and orientation, and the social layers they cater to. This multiplicity of agents and this variety of educational settings, characteristic of non-formal education, makes it a very adequate and efficient tool to connect environmental education with programmes and concrete projects of ecodevelopment.

One of the main obstacles to the development of non-formal environmental education is the multiplicity of existing, disconnected programmes lacking communication channels which would allow an exchange of ideas and experience. This obstacle is found both on regional, sub-regional and national levels and often among similar programmes, which are addresed to the same public.

Therefore it would be necessary to:

a) make an inventory, for each country, of the non-formal environmental education programmes which are being carried out and of the organizations in charge of these activities, indicating their aims and the kind of public they cater to;

b) create flexible and efficient mechanisms which can coordinate experiences, interchange material and ideas and become centres receiving and giving information, on a national level. This coordination should include national organizations, as well as private and international ones;

c) promote all kinds of non-formal environmental education programmes, especially those which can contribute to the accomplishment of local, national and regional objectives related to ecodevelopment plans.

Social communication as a tool for developing non-formal environmental education

Non-formal environmental education is an important tool for shaping a well-informed public opinion, aware of environmental problems, and consequently, fostering an active participation of the citizen in the decision-making process in matters of environmental policy.

In the light of this, participants found that means of mass communication may play an important role in non-formal environmental education of the general public. This means can, by virtue of its potential, reach very big sectors of the population who are otherwise out of reach of other kinds of activities or educational means. The participants called for research in order to establish which media of social communication can carry out the most responsible and efficient action to the benefit of environmental education.

Among the topics proposed for analysis and research are the social function of mass communication, the quality of present broadcast programmes and the relationship between their educational role, the legislation ruling the sector and the adequacy of these means. Other topics for research deal with techniques, methods and contents of the programmes.

It is considered necessary to:

a) develop the contents of the programmes to be broadcast aimed at sensitizing the public to local, national and world environmental problems, developing perception and awareness of such problems;

b) to conceive and develop programmes of environmental education for technicians, journalists and specialists in mass communication of all kinds, in order to carry out programmes with an environmental content;

c) to decide on measures tending to convert the media of social communication into an efficient tool for establishing positive exchanges of opinions between the planning and decision levels and the general public;

d) to apply systematic evaluation processes to the environmental education programmes which are being developed through mass-media communication, especially those of an experimental kind.

## V INSTITUTIONAL STRATEGIES FOR DEVELOPING ENVIRONMENTAL EDUCATION AT NATIONAL AND REGIONAL LEVELS IN LATIN AMERICA

### At the national level

1. What has been said above leads us to the conclusion that it is essential to take measures on a national scale, tending to put into practice the mentioned objectives. Among the most important ones are those aiming at creating or strengthening mechanisms of national co-ordination for developing and putting into practice an environmental policy, in which education plays a primordial role.

   Such mechanisms must be seen as part of the juridic-administrative aspects of each country, and therefore it is impossible to recommend the same kind of structure and the same way of functioning for all countries. In countries where mechanisms already exist to co-ordinate education, it will be necessary to reinforce and improve them; where they do not exist, it will be necessary to create them, after having defined the needs and structures within which mechanisms will operate.

   In the light of the above it was found convenient to:

   a) create or strengthen nationally mechanisms which co-ordinate activities of all public or private sectors and institutions, which - in one way or the other - influence or are related to the environment. Environmental education would be one of the main aspects of the work of these bodies, which might be ministries, secretariats, committees or commissions on the environment. In all cases they would work in close contact with the Unesco National Commission and be comprised of multidisciplinary groups with specialists qualified to guide or satisfy queries on environmental education which may be brought up by the respective government;

   b) that the mechanisms to be designed or strengthened conform in general terms to the following characteristics:

- they should encompass all sectors responsible for the adoption of policies which will in some way affect the environment;

- their action should not be jeopardised by bureaucratic obstacles or structures;

- they should have both the ability and possibility of access to the highest levels of political decisions;

- they should maintain contact with similar bodies within the region, as well as co-operation with international bodies outside the region;

- they should foster and stimulate research on all aspects related to environmental education, both through institutions and through interdisciplinary teamwork;

- they should foster all kinds of activities of co-ordination among different sectors, in order to achieve an integral planning and an execution consistent with plans related to the environment.

2. It would also be wise to draw on international resources of technical cooperation, because they may constitute a very important asset when planning for environmental education nation-wide.

In this sense it was found convenient to take steps conducive to the permanent and systematic inclusion of environmental education into programmes which are carried out jointly by one or more countries of the region and international bodies (especially into programmes which may have an important impact on the environment).

In more specific terms, it would be necessary to:

a) include activities in environmental education in programmes and projects that already exist within the region;

b) elaborate and execute new programmes on environmental education at a national level, mobilizing the country's human resources. These human resources may be motivated through international co-operation;

c) make special efforts tending to have all programmes with goals of economic, scientific, technical, cultural or social development - especially those which relate directly or indirectly on the environment, and that are carried out with cooperation from different organizations of the UN system or other international bodies - center their work within an environment-integrating perspective, which will play a leading role in environmental education. The UNESCO/UNEP programme on environmental education could be the center of a coordinating mechanism that would also integrate programmes carried out on a national as well as on a regional level.

3. The preparatory work for the Conference in Tbilisi, USSR, in late 1977, will certainly include the studies, analyses and debates on national and regional topics in environmental education. To ensure the success at this stage of the preparatory work, the participants felt it was necessary to:

a) set up, in the different countries, interdisciplinary teams or commissions with participation of official or private sectors that collaborate with the authorities in charge of the preparation of national points of view, in order to provide the scientific and technical information necessary for the best possible attainment of their goals;

b) stimulate a permanent exchange of ideas and information among countries of the region, on topics which will be discussed during the Conference, and on studies that may have been carried out by each country. This will help finding points of view which concur on some aspects of environmental education; it would also greatly help international cooperation and promote the UNESCO/UNEP programme.

c) give the poorer countries of the region a possibility to be represented at the Conference by groups of a high technical level, through help from international bodies such as UNESCO and UNEP.

At a regional level

1. As concerns the development or strengthening of international or regional networks for the gathering, compiling and diffusion of information in the field of environmental education, it was considered convenient to:

   a) launch and develop sub-regional programmes of information, training, exchange of human and material resources to diffuse experiences in environmental education, in order to improve the coordination of efforts in this field made by countries of the region;

   b) coordinate activities of these programmes by using fully the resources of which UNESCO disposes within the region, in order to avoid the creation of . structures that would overlap with structures already functioning in the region;

   c) aim at an optimum use of human and material resources within the region, so that environmental education may become a positive tool for horizontal co-operation among countries at the same level of development.

2. International organizations active within Latin America should aim at co-operating as much as possible with the environmental education programme of UNESCO and UNEP.

   This co-operation should be carried out based on:

   a) the strengthening of the regional mechanisms which permit to co-ordinate, without costly overlappings, programmes related to environmental education, where environmental education plays the basic role;

   b) coordination also, through the same mechanisms, of the work carried out by non-governmental organizations in matters of environmental education. These organizations should also be increasingly supported internationally.

ANNEX 1

REGIONAL MEETING ON ENVIRONMENTAL EDUCATION IN LATIN AMERICA AND THE CARIBBEAN

(Bogotá, Colombia, 24-30 November, 1976)

AGENDA

1. Opening of the meeting
2. Election of president, vice-president and rapporteurs
3. Introduction to the International Programme on Environmental Education
4. Introduction to the environmental problems of the region
5. Introduction to trends in environmental education in the region
6. Environmental education in Latin America and the Caribbean:
   i) Environmental education within formal education;
   ii) Environmental education within non-formal education
7. Strategies for development of environmental education in Latin America and the Caribbean
8. Approval of the recommendations
9. Approval of the final report
10. Closing of the meeting

REGIONAL MEETING ON ENVIRONMENTAL EDUCATION FOR LATIN AMERICA AND THE CARIBBEAN

(Bogotá, Colombia, 24-30 November, 1976)

CHRONOGRAMME OF THE MEETING

| Time | Wednesday 24 | Thursday 25 | Friday 26 | Saturday 27 | Sunday 28 | Monday 29 | Tuesday 30 |
|---|---|---|---|---|---|---|---|
| 08:30 to 12:00 | Opening of the meeting<br>Election of President, Vice-President and Rapporteurs | Working groups 1 and 2 on point 6 | Plenary session on point 6 | Working groups 3 and 4 on points 6(i) and 6(ii) | Excursion | Working groups 5 and 6 on point 7 | Plenary session on points 8 and 9<br>Approval of recommendations<br>Approval of final report |
| 15:00 to 18:00 | Introduction to the International Programme on Environmental Education<br>Plenary session on points 4 and 5 | Working groups 1 and 2 on point 6 | Working Groups 3 and 4 on points 6(i) and 6(ii) | Working groups 3 and 4 on points 6(i) and 6(ii) | Excursion | Free time<br>Preparation of the final report by Secretariat of the meeting | Closing of the meeting |

REGIONAL MEETING ON ENVIRONMENTAL EDUCATION IN LATIN AMERICA AND THE CARIBBEAN

(Bogotá, Colombia, 24-30 November, 1976)

TOPICS FOR DISCUSSION

| | |
|---|---|
| TOPIC I (Point 6 of the Agenda) | (Common to groups 1 and 2): Environmental education in the context of ecodevelopment and life-long education in Latin America and the Caribbean |
| TOPIC II (Point 6(i) of the Agenda) | (Group 3): Environmental education in the context of renewal and reform of formal educational systems |
| TOPIC III (Point 6(ii) of the Agenda) | (Group 4): Non-formal environmental education in the perspective of life-long education |
| TOPIC IV (Point 7 of the Agenda) | (Common to groups 5 and 6): Institutional strategies for the development of environmental education at national and regional levels in Latin America and the Caribbean |

LIST OF TOPICS FOR DISCUSSION IN WORKING GROUPS

TOPIC I (Common to working groups 1 and 2)
(Thursday from 08:30 to 18:00, and Friday from 08:30 to 12:00)

Environmental education in the context of ecodevelopment and life-long education in Latin America and the Caribbean:

- Environmental problems in Latin America and the role of education
- Main dimensions of environmental education
- General and specific goals of environmental education
- Main methodologies of environmental education

Working documents

1. The Belgrade Charter

2. Environmental problems in Latin America and the Caribbean

TOPIC II (for working group No. 3)
(Friday from 15:00 to 18:00 and Saturday from 08:30 to 18:00)

Environmental Education (EE) in the perspective of renewal and reform of the formal education systems

SUB-TOPIC 1: Integration of environmental education into study plans at different levels and in different kinds of formal education (methodological requisites and alternate modalities).

SUB-TOPIC 2: Training and qualification of personnel for the development of environmental education (teachers, professors, administrators, planners and researchers in education).

SUB-TOPIC 3: Inception and development of instructional materials for use in environmental education (methodological requisites and alternate types).

SUB-TOPIC 4: Reforms required in the inception and organization of school work on development of environmental education (relationships: School/community; learner/teacher; teacher/teacher; temporary compartmentalization of subject matters; interdisciplinary evaluation of the efficiency of education, etc).

SUB-TOPIC 5: Research, experiments and evaluation in the field of environmental education (priority topics).

WORKING DOCUMENTS

1. Needs and priorities in environmental education. Preliminary study of the Latin America and the Caribbean region.

2. Education and environment in Latin America; general overview of present trends and activities.

TOPIC III (for working group No. 4)
(Friday from 15:00 to 18:00 and Saturday from 08:30 to 18:00)

Non-formal Environmental Education (EE) in the perspective of life-long education

SUB-TOPIC 1: Environmental education of the general public and the use of mass-media

SUB-TOPIC 2: Environmental education addressed to specific groups of citizens: farmers, workers, technicians, administrators, etc

Working documents

1. Needs and priorities in environmental education - preliminary study of the Latin American and the Caribbean region

2. Education and environment in Latin America: general overview of present trends and activities

TOPIC IV (common to working groups 5 and 6)
(Monday 29 from 08:30 to 12:00)

Institutional strategies for the development of environmental education (EE) at regional and national levels in Latin America and the Caribbean.

The aim of this discussion is to identify institutional requisites that would foster EE at the following levels:

1. At a regional level, bearing in mind the need to:

   a) develop and/or strengthen international and regional networks for the gathering, compiling and diffusion of information in the field of EE (inventory of institutions, programmes, specialists, experiences, etc);

   b) Adequate use of the mechanisms for technical co-operation existing in the region (strengthening of the operational ability of the different international, inter-governmental and non-governmental mechanisms)

2. At a national level, bearing in mind the need to:

a) strengthen the abilities of national analysis leading to identification of points for discussion at the Intergovernmental Conference on Environmental Education, in USSR (1977). (For instance, through national meetings of experts in the field of EE);

b) use of international resources within the frame of country programming for development of EE (inclusion of environmental education components into the different programmes and projects relative to modern surroundings);

c) foster and/or strengthen national mechanisms for intersectorial and interinstitutional coordination aiming at short-, medium- and long-term development of EE (for instance by setting up permanent commissions of an interinstitutional and interdisciplinary kind);

d) horizontal co-operation among countries with similar levels of development (intra-regional and inter-regional) to foster EE. (Encourage and exchange national abilities and resources, information, experts, specialists, material, projects, etc, and design mechanisms for multi and/or bilateral co-operation in the frame of horizontal co-operation)

REGIONAL MEETING ON ENVIRONMENTAL EDUCATION IN LATIN AMERICA AND THE CARIBBEAN

(Bogotá, Colombia, 24-30 November, 1976

ORGANIZATION OF DISCUSSIONS IN WORKING GROUPS

The purpose of the following questions is only to help focus the discussion; they intend to lead to a more productive dialogue:

I Identification of problems

1. According to the working documents, which are the most important aspects and problems of the topic?

2. Which significant aspects and problems have not been adequately covered, or are even absent?

II Identification of possible solutions

1. Which means, strategies and activities might constitute adequate solutions to the main problems that have been identified?

III Formulating conclusions and recommendations

1. Which recommendations for action can be formulated in order to put into practice the means found to solve the problems?

2. Which national, regional or international bodies might carry out the above recommendations?

ANNEX 2

REGIONAL MEETING ON ENVIRONMENTAL EDUCATION IN LATIN AMERICA AND THE CARIBBEAN

(Bogotá, Colombia, 24-30 November, 1976)

PARTICIPANTS

| Name | Address |
|---|---|
| **UNESCO** | |
| Simón Romero-Lozano | Chief, International Programme on Environmental Education<br>7, Place de Fontenoy,<br>75700 Paris, France |
| Luis Albala Bertrand | Programme Specialist, International Programme on Environmental Education<br>7, Place de Fontenoy<br>75700 Paris, France |
| Donald A. Lemke | Regional Office of UNESCO<br>Casilla 3187<br>Santiago, Chile |
| Daniel Vidart | UNDP - Colombia<br>Calle 56 No. 37-34<br>Bogotá, Colombia |
| Luis Capurro | Consultant, Regional Office of Unesco<br>Casilla 3187<br>Santiago, Chile |
| **UNEP** | |
| Anastase Diamantidis | Representative of the United Nations Environmental Programme<br>Presidente Mazaryk 29<br>México 5, D. F., México |

| Name | Address |
|---|---|
| **Konrad Adenauer Foundation** | |
| Klaus Schaeffler | Representative in Venezuela<br>Apartado Postal 13<br>San Antonio de Los Altos<br>Edo. Miranda, Venezuela |
| Rolvering Heinrich | Representative in Colombia<br>Apartado Aéreo 90.832<br>Bogotá, Colombia |
| **Experts** | |
| Nora Semino | Professor, University of Buenos Aires,<br>Madero 235, 7o. Piso,<br>Buenos Aires, Argentina |
| Mabel Stokle | OAS Sciences, Ministry of Education<br>Avda. Madero 235, 7o. Piso<br>Buenos Aires, Argentina |
| Antonio F. Salonia | Nueva Escuela Argentina 2.000<br>Sucre 2824<br>Buenos Aires, Argentina |
| John A. Connell | Conservation Caribbean Association<br>St. Michael, Barbados |
| Maritza Jiménez | Director, Fundación San Gabriel<br>Casilla 4093<br>La Paz, Bolivia |
| Gladys A. Bottaro N. | Secretary for Education and Culture,<br>W-3 Sul Q 712 Bl. P, Casa 45<br>Brasilia, D.F. 70.000, Brasil |
| Myriam Krasilchik | Director for Science and Technology,<br>University of Sao Paulo,<br>R. Itapicurú 817 Apto. 61<br>Sao Paulo 05006, Brasil |

| Name | Address |
|---|---|
| **Experts** | |
| Regina Elena Crespo | Programme for Training Human Resources, SEMA, Ministerio Do Interior, 5o. Andar, Brasilia, Brasil |
| Mary Luna Santos | Rector, Escuela Normal de Señoritas, Bucaramanga, Bogotá, Colombia |
| Alfonso López Reina | Rector, University of Caldas, Manizales, Colombia |
| Bernardo Pérez | EAFIT University, Medellín, Colombia |
| Javier Santander | Advisor, INDERENA Calle 26 No. 13B 47 Bogotá, Colombia |
| Alfonso Laso Barros | CONACYT Santiago Miguel Claro 33, Depto. 201 Santiago, Chile |
| Joana Filp | CIDE Santiago Almirante Barroso 22, Santiago, Chile |
| Octaviano Trujillo | Director, Department for Planning of the Province, Ministry of Education, Quito, Ecuador |
| Raúl Aquiles Marroquín | Planning Office, Ministry of Education, 13, Calle 55, zona 1 Ciudad de Guatemala, Guatemala |
| Leslie P. Cummings | Professor, University of Guyana, Georgetown, Guyana |
| Jorge A. Betancourt R. | Department for Ecology, Division of Natural Resources, Bo la Guadalupe, casa 227, Tegucigalpa, Honduras |

| Name | Address |
|---|---|
| **Experts** | |
| Richard Morris Thelwell | Director, Conservation of Natural Resources<br>11 Musgrave Ave.,<br>Kingston N., Jamaica |
| Luisa Emilia Mairena | Ministry of Education,<br>Bello Horizonte 6-4-43<br>Managua, Nicaragua |
| Zonia E. Gallardo de Smith | Ministry of Education,<br>Calle 50, Edif. La Macarena No. 14,<br>Panamá, Panamá |
| Miguel Azcueta | Co-ordinator, CECOM Projects<br>Larco 1140, Miraflores,<br>Lima, Perú |
| Rolando Andrade Talledo | Director, Basic Education, Ministry of Education,<br>Av. Abanlay s/n, Piso 7o. Of. 709,<br>Lima, Perú |
| Yolanda Moreno | Director, NEC 02 zone 04<br>Avda. Enrique Salazar Barreto No. 216,<br>Vista Alegre - Surco,<br>Lima, Perú |
| Cleuterio M. Estévez | Radio Santamaría,<br>Apdo. 55 La Vega,<br>Dominican Republic |
| Deryck Heinemann | Director, Department of Biology,<br>4 Nickerie Street,<br>Panamaribo, Surinam |
| Colin Laird | Multidisciplinary Group on Environment,<br>34 Murran Street, P. O. Box 341,<br>Port of Spain, Trinidad |

| Name | Address |
|---|---|
| **Experts** | |
| Luis Caviglia Tahier | National Institute for Conservation of the Environment,<br>Luis Cavia 3046<br>Montevideo, Uruguay |
| Hernán Contreras | Central University,<br>Res. Rito Apto. 13, Chavaito,<br>Caracas, Venezuela |
| **Observers** | |
| Cecilia O. de Arenas | Chief, Division of Adult Education,<br>Ministry of Education,<br>Bogotá, Colombia |
| André Vernoth | Technician from INDERENA<br>Calle 26 No. 13B 17<br>Bogotá, Colombia |
| Alfonso Rocha García | Funds for Training - INRAVISION<br>Avda. Caracas No. 63-09<br>Bogotá, Colombia |
| Hernán D. Acero | ICFES,<br>Calle 17 No. 3-40<br>Bogotá, Colombia |
| Héctor Troyano Guzmán | Public Relations, SECAB<br>Carrera 21 No. 33 A64,<br>Bogotá, Colombia |
| Margaret Davies | Centre for Natural Systems of Biology<br>Box 1126 Washington University,<br>Sthabis, Missouri 66130, USA |
| Victor W. Bruce | Vice-President of Working Group, FAO<br>Via delle Terme di Caracalla<br>1-00100 Roma, Italia |

| Name | Address |
|---|---|
| **Observers** | |
| Manuel I. Vegas | UNESCO/UNDP Expert<br>Apartado Aéreo 091369,<br>Bogotá, Colombia |
| Lelio Mármora | I.L.O.<br>Calle 20 No. 8-18<br>Bogotá, Colombia |